### ELECTRICITY IN WARFARE.

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A SUMMARY OF THE IMPORTANT NEW ELECTRICAL INVEN-TIONS WHICH ARE REVOLUTIONIZING MILITARY SCIENCE-ELECTRIC LIGHT SIGNALLING WITH BALLOONS-THE SIEGES OF RICHMOND, PARIS KHARTOUM OR SEBASTOPOL WOULD BE IMPOSSIBLE UNDER MODERN PRACTICE-MILITARY AP-PLICATION OF THE MICROPHONE FOR DETECTING THE AP-PROACH OF THE ENEMY.

would have come up in time, and the magnificent execution of Cambronne would never have been uttered.

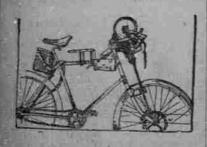
As Huge pointed out, Waterloo was the conclusive argument in favor of method, which is only another name for science as opposed to intuition in warfare. Modern progress has confirmed the opinion. Force of numbers no longer includes the certainty of victory and the one man element seems to be



small electric equipment can make such sieges as Lucknow, Khartoum, Paris or Richmond impossible; one man forewarned, can, in fact, surround himself with electrical apparatus and

man forewarned, can, in fact, surround himself with electrical apparatus and defy or decimate an enemy at wift, deflect his rifle balls, blow up his mines, destroy his vessels, annihilate his forts and out a strong negative on the asserted recessity of any country maintaining an immense standing army.

Recent accumulated evidence shows that the end is not yet. The disinctive mark of favor has been bestowed by the government on those army and newly officers who have invented new and the fall systems of practice. The result has been an active competition, and some reality useful methods have been evolved. Electric balloon literature is especially voluminous. Practically the first successful balloon with which rapid and efficient signalling can be done is the large silk affair now being operated at Fort Logan, Col. It has been in operation over a year and has been in operation over a year and the results are interesting and satis-factory. The outfit consists of the bal-icon, which has a caracity of 14,000 cubic feet, a balloon house and a gusowith a cubic capacity of 1,000 The success of the balloon as above the fort has led to the se-ling of the lance wagen, which is now a balloon wagon carrying four gas tubes, cables, bag, etc. There are 180 steel gas tubes carried along on exteditions and in these gas is compressed from 1.400 to 2,020 pounds to the square. Tubes. Only 30 minutes are re-



Picycle Field Telegraph and Teleprone Reel, Showing Side View.

Discoveriments 10,000 feet of whre were used, it was wound and unwound, a regiment of cavalry passed over it; it was sounds in much passed through trees, busines, over rocks and finally up the cable of a captive balloon, and very signalling went on between each ergo of the line without interruption. Reels attached to bloycles and to cavalry may of doing it when it required 50 hours for inflation, after which the only way of communication was by means of weighted letters dropped from the basket. Signals fr m captive balloons are and can be transmitted in a variety of ways. If the balloon is to be used for reconnoidering purposes the feath of a telephone down the cable to the waron, from whence it can be relayed a telephone down the cable to the waron, from whence it can be relayed a feet telephone down the cable to the waron, from whence it can be relayed a freedown of the singleties in the neighborhood. Expanded on telephone down the cable to the waron, from whence it can be relayed a feet telephone down the cable to the waron, from whence it can be relayed a feet to the mellocarph is system as was used at Fort Legan might be employed size. A bright, if messages are to be transmitted to the mellocarph is system as was used at Fort Legan might be employed size. A bright if messages are to be transmitted to the mellocarph is system as was used at Fort Legan might be employed size. A bright if messages are to be transmitted to the mellocarph is system as was used as A bright, if messages are to be transmitted to the mellocarph is system as was used in the mel

In speaking of the great advances in military science, a Governor's island army officer recently said; "If electricity had been reduced to its present practical basis during Napoleon's time, or even during the more medern sieges of Richmond, Paris or Sebastojol, the listory of the world would have been greatly changed."

This statement, which sounds platitudinous at first harring, takes on a peculiar significance in view of some interesting electrical applications which have just been made and some experiments which are now being carried on. It inclines the observer to a belief that the buttle of the future will be more of a contest between button-pushing scientists than an old-fashioned, but deadiy, clash at arms. The Farraguis of the future will not need to lash themselves to the shrouds nor will the fate of some Waterloo depend, in the fine to come, on the uncertain word of a peasant strapped to a general's stirring. In short, if Napoleon had had at his command the scientific resources of the present subaltern he would have known all about the hollow road of Ohain; he would have known all about the rapid approach of Elucher; Grouchly would have come up in time, and the magnificent exerration of Cambronne world newer than the magnificent exerration of Cambronne world newer than the magnificent exerration of Cambronne world newer have been uttered.

after the current is shut off and while the carion is not yet cool.

Balloon photogrametry or the surveying and photographing of distant fields has also been much improved of late. The invention of the telescopic photographic lenses has advanced this department of military schence perceptibly. In fact, the balloon question in warfare is one that is canable of almost indefinite development. The possibilities claimed for the balloon of the future are dazzling. For instance, army sibilities claimed for the balloon of the future are dazzling. For instance, army officers say that there is nothing improbable in the supposition of a general of the future using a balloon as a point of observation and transmitting his orders by wire to his army beneath his feet. An officer with everything thus under his eye could be in electric communication with every gun on the

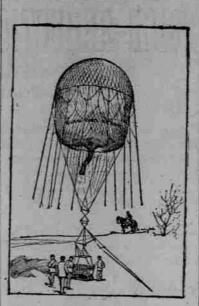


The Allen Telegraph and Telephone Kit.-Drawn from a Photograph.

Missouri. Undoubtedly quick work could be done with it, but the far better method of communication, by telephone, is preferred by many engineers. By means of a metallic wire, having a steel core covered with copper, it is possible to telephone between two points through one strand of wire, even though the wire be non-insulated and lying on wet ground. The peculiar properties of the wire have been known for some time and when it first appeared there was much talk of the possibility of being able to talk over it across the ocean. It will, however, perform very creditable feats on land, and in France, at least, Captain Charollois has devised a means of using it for army purposes. His system embraces a reel and transmitters which can, with enough wire to cover a very appreciable distance, be carried by one man. The reel, etc., are carried like a haver-sack and take up no more room. The earth is used as a return circuit and the "ground" is generally made by attaching one end of the wire to a sword or bayonet stuck in the earth. In the experiments 19,006 feet of wire were used. It was wound and unwound, n regiment of cavalry passed over it; it

ciphering it. Should the carrier of a phonographic cylinder be in danger of capture, he could forever destroy the import of his message by crushing the cylinder in his hand. And finally and most important, subordinates on the staff or in the army of the officer transmitting the message could not through thoughtlessness or design destroy some strategic combination by making known the contents of a written message. The machine could be talked into in tones so low that no bystander could possibly overhear. The roar of battle on the other hand does not affect the operation of the instrument, which takes no account of the booming of big guns, the vibration of which is below its range, but selects only that which it is meant it should select.

The microphone is now being experimented upon with a view to making it available for detecting the approach of a hostile force while the latter is yet some distance away and far beyond ordinary hearing. The microphone as now used will magnify the sound of the



The General Myer Miltary Balloon

## METEORS AND THEIR WAYS.

Such is, in fact, the usual history of one of these "shooting stars" which every clear night may be seen to flash across the sky. It will be noted that each such apparition marks the total transformation of the meteor. I use the word transformation indirectly for, of course, it will be remembered that no such event as the absolute destruction of a particle of matter ever takes.

minded that the great shoal of November meteors is again hurrying towards the justified in the year 1899 a repetition of that glorious display which so many of us treasure in our memories.

A full-rigged, four-masted iron ship, with two years' stores and 2,500 tons of course, it will be remembered that no such event as the absolute destruction of a particle of matter ever takes. of course, it will be remembered to such event as the absolute destruction of a particle of matter ever takes place in nature. The meteor is no doubt committed into dust, that dust slowly subsides to the ground through our air so that this globe of ours must be actually growing in bulk by the spoils of the untold meteors which it has captured.

St. Louis A. B. C. Beer.

since a supposed to institution in the street of manifest any that here is nothing on a position. From of numbers my that here is nothing on a position. From of numbers my that here is nothing on a control terms of the street with a street when the control terms is not a building of the control of the original control of the control o

on land. The oblescopes mounted on land. The oblescopes mounted in her of feet part. They are connected to such other by an electric credit, and the connected that the care of the capart. They are connected that the capart is not such other by an electric credit, and the capart is not such other by an electric credit, and the capart is not such other by an electric credit, and the capart is not such as a perfect that the moment is not such as a perfect that the moment is not connected that the moment is not connected that the moment is not connected to the capart is not connected that the moment is not connected to the capart is not connected

course, a very different matter from the prediction of an eclipse of the sun, where the movements of the three bodies concerned are subject to continuous scrutiny and are perfectly well known. Notice.—There are delinquent the following the

WHAT WE CALL SHOOTING STARS ARE REALLY SMALL SCHAPS OF DEBREIAL OF THE BEALLY.

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WHAT WE CALL SHOOTING STARS ARE REALLY SMALL SCHAPS OF DEBREIAL OF THE BEALLY.

PROFESSION.

A full-rigged, four-masted iron ship, with two years' stores and 2.500 tons of coal on board, was sold for \$55 at Yarmouth, England, recently. She had



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ST. LOUIS, MO., U. S. A. Brewers and exclusive Bottlers of the

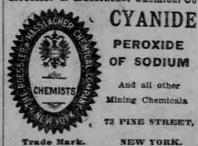
#### T, LOUIS A. B. C. BOHEMIAN Wholesale department at "THE OCCIDENTAL"

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Whiskies, Wines, Liquors, Cigars.

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# SAPONIFIER

Pennsylvania Saponifier is the original and old re-able Concentrated Lye for family soap making for family soap making and general household uses. Beware of counterfelts. The success of this article has induced unprincipled parties to imitate it. None genuine unless Pennsylvania Sait Manufacturing Co., Phil stamped on the lid. Ask you it and take no other.



THE ANNUAL MEETING OF THE tockholders of the Mercur Gold Mining

\*Balance.

And in accordance with law and orders of the board of directors, so many shares of each parcel of such stock as may be necessary will be sold at the office of the company, 49 South Main street, room No. 1, Salt Lake City Utah, on the 3th day of January, 1887, at 11 a. m., to pay delinquent assessment, together with cost of advertising and expense of sale, Secretary Utah and Salt Lake Canal Co., Salt Lake City, December 22, 1896.

# THE UTAH GUANO COMPANY.

THE UTAH GUANO COMPANY.

NOTICE OF STOCKHOLDERS MEETing.—Sait Lake City, Utah, December II,
1986. Whereas, the annual meeting of
the stockholders of the Utah Guano company for the election of officers should
have been holden on the second Tuesday
of October, 1985. And, whereas, said meeting was not holden and the meeting that
should have been held on the second
Tuesday of October, 1886, was not holden
by reason of the failure of the officers of
said company to call said meeting. Now,
therefore, we, the undersigned, six of
the stockholders of the Utah Guano company, do hereby call a meeting of said
stockholders for the purpose of electing
a board of directors and such other officers as the articles of incorporation provide for, which meeting will be held at
the office of the company, No. 314 McCornick block, Sait Lake City, Utah, on
the 30th day of December, 1886, All stockholders are hereby notlined to attend such
meeting.

DAVIS G. PRICE.

DAVIS G. PRICE. GEORGE A. PAYNE, ALBERT RICHTER. MORRITZ RICHTER. THOMAS A. PERKINS, W. H. HOWELL. EXECUTORS' SALE.

### NOTICE IS HEREBY GIVEN THAT pursuance of an order of M. L. Ritchie.

NOTICE IS HEREBY GIVEN THAT in pursuance of an order of M. L. Ritchie-judge of the probate division of the Third judicial district court of the state of Utah, in and for the county of Salt Lake, made on the 12th day of September. A. D. Et al. S. M. In the matter of the estate of Thomas Alisop, deceased, the undersigned executors or of the estate of said deceased, will sell at private sale to the highest bidder for cash, lawful money of the United States of America, and subject to confirmation by said court, on the lith day of January, 1877, at 12 o'clock moon of as said day, at the law office of Moyle, Zana & Costigan, rooms Nos. 7-4. Deseret National Bank building, corner Main and First South streets, in Sait Lake City, Utah, all the right, title and interest that the said estate has, by operation of law or otherwise, acquired other than or in addition to that of the said Thomas Allsop, deceased, at the time of his death, and all the right, title and interest that the said estate has, by operation of law or otherwise, acquired other than or in addition to that of the said Thomas Allsop, deceased, at the time of his death, in and to all of the following described tracts of real estate, towit: Commencing ninety-four (94) rods and eight (8) links east of the northwest corner of the southeast quarter of section six (6), township three (3) south of range one (1), east of the Sait Lake meridian, thence south sixty-seven (67) rods and twenty-one (21) links; thence east sixty-five (23) rods; thence haven twenty-five (23) acres, fifty-two (24) rods and ten (18) links, situate in Sait Lake county, state of Utah. Also the southwest quarter of section six (6) rownship three (3) south of range one (1), west of Sait Lake meridian, containing one hundred and sixty (169) acres of land, the same being situate lying and being in Cache county, state of Utah. Also all of lots twenty-eight (28) and twenty-nine (29), and a part of the southeast quarter of section six (6), township three (3) south of range one (1), east of the Sait

saic, balance on confirmation of sale by said court. Deed at expense of purchaser, GEORGE A. ALLSOP, THOMAS M. ALLSOP, JOSEPH H. ALLSOP, Executors of the Estate of Thomas All-sop, deceased. Dated December 18th, 1896.

SUMMONS.

IN THE DISTRICT COURT OF THE Third Judicial district of the state of Ctah, county of Salt Lake. M. E. Voget, plaintiff, vs. T. Stoddard and Anna Stoddard, defendants. Summons—The state of Utah sends greeting to T. Stoddard and Anna Stoddard, defendants: You are hereby required to appear in an action brought against you by the above named plaintiff in the district court of the Third Judicial district of the state of Utah, and to answer the complaint filed therein within ten days (exclusive of the day of service) after the service on you of this summons—if served within this county, but in this district, within the tendy days; otherwise within forty days—or judgment by default will be taken against you, according to the prayer of said complaint. The said action is brought to have judgment against defendants, upon maturity of promissory note hereinafter described, in sum of 19,000 with interest from October 7, 1885, at the legal rate, and for costs of sult; alleged to be dise upon said delivered to plaintiff by defendants, October 2, 1885, for 180,000 due one month, three days after date, and being wholly unpaid; this action being brought for the purpose of attaching the property of said defendants and holding same until maturity of said indebtedness. And you are hereby notified that if you fall to appear and answer the said complaint as above required, the said plaintiff will take judgment against you for the sum of \$10,000, with interest as above and costs of suit, Wirness the honorable judges, and the seal of the district court of the Third Judicial district. In (Seal) and for the state of Utah, this Ist day of November, in the year of our Lord one thousand eight hundred and ninety-six.

C. E. STANTON, Clark, By J. H. SPRAGUE, Deputy Clark, Moyle, Zane & Costigan, Attorneys for Plaintiff.

### ASSESSMENT.

ASSESSMENT.—NAME OF CORPORAtion in full: Sheep Rock Mining and
Milling company. Location of principal
place of business. No. 314 McCornick building. Sait Lake City, Utah. Location of
mines, near Beaver. Newton mining distriet, Utah. Notice is hereby given that
at at meeting of the board of directors of
the Sheep Rock Mining and Milling company, held at the company's office on
Friday. November 20th, 1885, an assessment of ten cents per share was levied
on the capital stock of the comporation,
payable at once to William Campbell, secretary and treasurer of the company, at
No. 114 McCornick building, Sait Lake
City, Utah. And at a meeting of the
board or directors of said company held
December 5th, 1886, the date on which
the unpaid assessment should be dellinquent was fixed at January 9th, 1997, and
the date of saic of delinquent stock fixed
at January 3b, 1997. Any stock upon which
this assessment may remain unpaid on
the 2th day of January, 1897, will be de-

STOCKHOLDERS' MEETINGS.

THERE WELL D. ... PRINTERS indicate of the control of the contr